CLAIMS

1. A band saw machine in which an endless band saw blade is hung around a driving wheel and a driven wheel rotatably supported by a saw blade housing capable of vertically moving wherein:

a pair of guide posts for vertically guiding the saw blade housing is provided between the driving wheel and the driven wheel;

an upper traveling part of the band saw blade is disposed at one side of the front and rear sides of the guide posts; and

an lower traveling part of the band saw blade is disposed at the other side of the front and rear sides of the guide posts.

2. A band saw machine according to claim 1, wherein

when the band saw machine is viewed from the side, an intersection point between centers of both the wheels and a center line of the wheel width is located at a position almost equal to the width of the guide posts or within the width.

3. A band saw machine according to claim 2, wherein

a blade of the upper traveling part of the band saw blade is bent to be vertically oriented downwards; and

a center of gravity is positioned at a lower part of the inclined saw blade housing.

4. A band saw machine according to claim 3, wherein

the saw blade housing is opened to the upside and formed in the shape of C; and

the upper ends of the pair of guide posts are integrally coupled to each other with a coupling member.

5. A band saw machine, comprising:

a saw blade housing that can move in the vertical direction, a rear part of which is inclined upwards by about 45 degrees relative to a horizontal plane;

a pair of guide posts for guiding the saw blade housing so as to be movable in the vertical direction;

a driving wheel and a driven wheel that are pivotally supported by the saw blade housing so as to be rotationally driven;

a circular band saw blade that is hung around the driving wheel and the driven wheel under appropriate tension and rotationally travels; and

a pair of saw blade guides for vertically bending and guiding the band saw blade so that the blade of the horizontal traveling part of the circular band saw blade traveling between the driving wheel and the driven wheel is oriented downwards; wherein

a band saw blade introducing means for introducing an intermediate region of the lower traveling part of the circular band saw blade into the outer peripheries of the driving wheel and driven wheel when the circular band saw blade is attached to the driving wheel and the driven wheel is provided on the front side of the band saw machine.

6. A band saw machine according to claim 5, wherein

the band saw blade introducing means is formed of an upper band saw blade introducing means provided on both sides of a product receiving table on the front side of the band saw machine and a lower band saw blade

introducing means provided at a base of the band saw machine as opposed to the upper band saw blade introducing means; and

a slit through which the intermediate region of the lower traveling part of the band saw blade can pass is formed between the upper band saw blade introducing means and the lower band saw blade introducing means.

7. A saw blade attaching method using a band saw machine which includes:

a saw blade housing that can move in the vertical direction, a rear part of which is inclined upwards by about 45 degrees relative to a horizontal plane;

a pair of guide posts for guiding the saw blade housing so as to be movable in the vertical direction;

a driving wheel and a driven wheel that are pivotally supported by the saw blade housing so as to be rotationally driven;

a circular band saw blade that is hung around the driving wheel and the driven wheel under appropriate tension and rotationally travels;

a pair of saw blade guides provided at the saw blade housing for vertically bending and guiding the band saw blade so that the blade of the horizontal traveling part of the circular band saw blade traveling between the driving wheel and the driven wheel is oriented downwards; and

a band saw blade introducing means having a slit for introducing the intermediate region of the lower traveling part of the circular band saw blade into the outer peripheries of the driving wheel and the driven wheel when the circular band saw blade is attached to the driving wheel and the driven wheel,

the method comprising:

1. a step of adjusting the saw blade guides at appropriate interval in response to the width of the cut material;

2. a step of inserting the circular band saw blade from above the guide posts;

3. a step of inserting the upper traveling part of the circular band saw blade into the saw blade guides and fixing thereto;

4. a step of inserting the lower traveling part of the circular band saw blade through the slit of the band saw blade introducing means and attaching the lower traveling part of the circular band saw blade to the outer peripheries of the driving wheel and the driven wheel; and

5. a step of applying appropriate tension to the attached band saw blade by a tension applying means.

8. A saw blade driving method in a band saw machine in which an endless saw blade is wound around a driving wheel and a driven wheel rotatably supported by a saw blade housing, the saw blade is rotationally moved by rotationally driving the driving wheel by the saw blade driving unit and a cut material is cut with the rotationally traveling saw blade,

the method comprising the steps of:

coupling the saw blade driving unit to the shaft of the driving wheel in the floating state in the saw blade rotating direction with respect to the saw blade housing;

controlling the saw blade rotating direction of the saw blade driving unit via a buffer part provided at the saw blade housing; and

damping a reaction force caused by the driving of the saw blade by the buffer part.

9. A saw blade driving method according to claim 8, wherein the buffer part is a resin material having elasticity.

10. A saw blade driving method according to claim 8, wherein the buffer part is a spring body.

11. A saw blade driving method according to claim 8, wherein the buffer part is a damper device.

12. A saw blade driving method according to claim 8, wherein the buffer part is a vibration generating device for applying vibration to the saw blade driving unit.

13. A band saw machine, comprising:

an endless saw blade wound around a driving wheel and a driven wheel rotatably supported by a saw blade housing; and

a saw blade driving unit for rotationally moving the saw blade by rotationally driving the driving wheel, wherein

the saw blade driving unit has a floating structure coupled to the shaft of the driving wheel in a floating state relative to the saw blade housing in the saw blade rotating direction; and

a buffer part for controlling the saw blade rotating direction of the saw blade driving unit and damping the reaction force generated by driving of the saw blade is provided at the saw blade housing.

14. A band saw machine according to claim 13, wherein the buffer part is formed of a resin material having elasticity.

15. A band saw machine according to claim 13, wherein the buffer part is formed of a spring body.

16. A band saw machine according to claim 13, wherein the buffer part is formed of a damper device.

17. A band saw machine according to claim 13, wherein the buffer part is formed of a vibration generating device for applying vibration to the saw blade driving unit.

18. A band saw machine, comprising:

a main unit vise for cramping a work in the rear of a cutting position where the work is cut with a band saw blade and a sending vise that is movable in the cross direction for sending the work;

a saw blade housing having a driving wheel and a driven wheel around which the band saw blade is wound; and

a pair of saw blade guides for bending the band saw blade in the saw blade housing and guiding the band saw blade, wherein

one of a front insert and a rear insert is fixed to a front end of the saw blade guide; and

the other of the front insert and the rear insert is provided so as to be movable in the cross direction.

19. A band saw machine according to claim 18, wherein

the scope of the movement of the other of the front insert and the rear insert in the cross direction is set as a scope in which the edge of the

moving band saw blade is allowed to separate from the cut face of the work.

20. A cutting method using a band saw machine which includes a main unit vise for cramping a work in the rear of a cutting position where the work is cut with a band saw blade and a sending vise that is movable in the cross direction for sending the work; a saw blade housing having a driving wheel and a driven wheel around which the band saw blade is wound; and a pair of saw blade guides for bending the band saw blade in the saw blade housing and guiding the band saw blade,

the method comprising the steps of:

cutting the work with the band saw blade and then moving the sending vise backwards, thereby relieving the work backwards from the cutting position;

moving the rear insert backwards relative to the front insert provided at the front end of the saw blade guide to open the rear insert; and

returning the band saw blade to the initial position.

21. A cutting method according to claim 20, wherein

the scope of the movement of the rear insert in the cross direction is a scope in which the edge of the moving band saw blade is allowed to separate from the cut face of the work.